REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the present application.

The Examiner's Office Action dated March 12, 2001, has been received and its contents reviewed. Claims 1, 3-4 and 6-29 were pending in the present application prior to the instant Amendment. By this Amendment, claims 13, 17, 21-22, and 28 have been amended. Subsequently, claims 1, 3-4 and 6-29 are pending, of which claims 1, and 13 are independent.

The Examiner's comments regarding the drawings have been noted. Applicant will take appropriate action to correct the drawings as stated by the Examiner.

Referring now to the Office Action, claims 3 and 13-29 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The rejection is respectfully traversed.

With regard the Office being unclear on the meaning of the word "fan shaped" in claim 3, Applicants respectfully refer the Office to page 8, last line in 3rd paragraph of the specification which describes the laser beam as "unfocused laser beam or fan-shaped beam."

With regard to the lack of antecedent basis found in claim 13, 17, and 20-22, Applicants have amended the claims, as shown above, to overcome the rejection. Accordingly, the § 112, second paragraph, rejection of claims 3 and 13-29 is respectfully requested to be reconsidered and withdrawn.

Claim 13 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Yanagida (U.S. Patent No. 5,088,864). This rejection is respectfully traversed.

Yaganida teaches an automatic engraving system for automatically engraving the lateral contour of a person's face on a medal. The system includes, among other things, two cameras 14A and 14B, each disposed at a position offset from the lateral contour of a face by a predetermined angle and two charge coupled devices including a monitor screen on which the lateral contour of the face is displayed and a number of lattice points being arranged on the monitoring screen. The lateral contour of the face is determined by sequentially measuring a width, a height, and a thickness of the lateral contour of the face at a certain actual point on the latter and sequentially processing the dimensional data derived from the measurements.

Yaganida also suggests the use of a light beam cutting method, wherein a person's

face is scanned by a light beam in the form of a light film which is produced by a parallel light beam enlarging lens system (beam expander) and a composite system comprising a plurality of column-shaped lenses. With this method, an intersection defined by the light film and the outline of the face is created in the form of a bright line which represents a contour of a plane derived from a cutting operation for the face, by using light beam or laser beam as a knife. Thus, a three-dimensional configuration of the face can be measured by displacing the light film relative to the face. The three dimensional measurement of the face is then used to engrave a medal 4, as shown in Fig. of Yaganida.

Applicants' invention as recited in amended claim 13, on the other hand, is a system for forming a custome-made insole. The system as amended includes, among other features, a scanning station for supporting a foot to be measured, wherein the scanning station further includes at least one moveable laser scanning unit, and at least one insole-milling station including a insole-milling assembly. Applicants respectfully submit that Yaganida clearly does not disclose an system for forming custom-made insole including a scanning station for supporting a foot to be measured, at least one insole-milling station including a custom-made insole-milling assembly, or at least one moveable laser scanning unit.

As described in col. 3, line 52 to col. 4, line 2 of Yaganida, a person whose face is being scanned sits on a chair 10 to assume his/her own position where a center line of his/her face exactly matches with the center line 15 that is previously placed on the screen of the monitor 11. That means that a person's face must be kept still by watching himself/herself on the monitor to keep the face properly aligned to a centerline on a monitor during the lateral contour measuring process.

As can be seen, Yaganida fails to disclose all the features recited in Applicants' amended claim 13. As there clearly are functional differences between Applicants' claimed apparatus and that of Yaganida, Applicants respectfully submit that there are structural differences, as presented above. Further, given the structure of the apparatus of Yaganida, which requires a person sitting in a chair to maintain a centerline of his/her face in alignment with a centerline on a monitor screen so that the lateral contour of the face could be measured and reproduced on a medal-size surface, Applicants respectfully submit that it cannot possibly be used for measuring the coordinate of the undersurface of one's foot so that a foot-size custom-made insole can be milled on the insole-milling station from measurement data. It is unclear, among other things, how the chair 10 of Yaganida that can be turned to the left, right, and /or raised up/down to adjust its position so that the face could be centered on the

centerline on the monitor could be employed to support a foot so that its undersurface could be scanned.

In view of the amendment and argument set forth above, the § 102(b) rejection of claim 13 is insupportable and is respectfully requested to be reconsidered and withdrawn.

Claims 1, 4, 6, and 7-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sundman (U.S. Patent No. 5,449,256) in view of Garuet-Lempirou (U.S. Patent No. 5,712,803). Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Sundman (U.S. Patent No. 5,449,256) in view of Garuet-Lempirou (U.S. Patent No. 5,712,803) as applied to claim 1 and further in view of Applicant's admission of prior art (AAPA) on page 8, lines 11-15. Claims 1, 7-16 and 20-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over White (U.S. Patent No. 5,237,520) in view of Sundman (U.S. Patent No. 5,449,256). Claims 1, 3-4, and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over White (U.S. Patent No. 5,237,520) and Sundman (U.S. Patent No. 5,449,256) as applied to claim 1 and further in view of Applicant's admission of prior art (AAPA) on page 8, lines 11-15. These §103 rejections are respectfully traversed.

With respect to the § 103 rejection of claims 1, 4, 6, and 7-29 over Sundman in view of Garuet-Lempirou, Applicants respectfully submit that Sundman teaches a milling machine that is required to receive contour data from a floppy disk. Sundman heavily emphasizes the reduction in noise, and, without suggestion or motivation of transmitting contour data via other means other than a disk, it is understood that the non-laser-based foot contour measurement machine does not transmit contour data to milling machine without the intervention of a person performing the task of transporting the disk from the measurement machine to the milling machine. As such, it is interpreted that Sundman preferably accomplishes the transferring contour data to the milling machine is via a floppy disk.

With respect to the Garuet-Lempirou reference, which discloses a method for measuring an object through a transparent wall using a laser-based system, there is a reference to collecting measurement data but not to how measurement data are provided to a processor and a milling machine for making a custom-made insole.

With respect to claims 3, which stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sundman in view of Garuet-Lempirou as applied to claim 1 and further in view of Applicant's admission of prior art (AAPA) on page 8, lines 11-15, Applicants respectfully submit that it is only through impermissible hindsight reconstruction using Applicants' invention would one find the motivation to apply a non-focused fan-shaped line

of laser light along the undersurface and sides of a foot to determine a 3D map of the undersurface of the foot. Further, the Office has failed to indicate the language in the cited prior references that suggests or motivates one of ordinary skills in the art to modify the disclosures of Sundman and Garuet-Lempirou to utilize a non-focused fan-shaped line of laser light along the undersurface and sides of a foot as recited in claim 3.

With respect to claims 1, 7-16 and 20-29, which stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over White (U.S. Patent No. 5,237,520) in view of Sundman, Applicants respectfully submit that the system disclosed by White includes, among other things, an electro-optical scanner unit that scans the bottom facing surfaces of a foot that is placed against a reference surface. The system of White electronically displays the scan of the foot bottom surfaces on a visual display to produce a foot image articulating distances of portions of the foot bottom facing surface from the reference surface. From the scanned image a three-dimensional (3-D) topographical image of a foot is derived and the foot size is computed. The 3-D topographical information is derived by determining the intensity of lightness and darkness portions of the scanned foot image with respect to other portions of the scanned foot image.

According to Fig. 1 of the White reference, the foot measurement information for a particular customer is stored in a storage facility at a retail footwear store (block 102), and, subsequently, such information is electronically transferred to a centralized database (block 104), which provides the measurement information, along with style preference information, to a Computer-Aided Design/Computer Aided Manufacturing (CAD/CAM) device (block 110) generating machine control codes for last manufacturing. The control codes for last manufacturing controls a last production machine (block 112) producing a unique last for customer. The last produced is used to manufacture custom fit footwear and footwear products (block 114). The custom fit footwear that can then eventually be made from a last are insoles, heel cups, metatarsal support, volume adjustment shims, and the like, as mentioned by White.

Applicants respectfully submit that White does not teach suggest, or imply the step of milling a custom-made insole based on transmitted surface coordinates, passing at least one laser scanning unit along an undersurface of a foot, or scanning the undersurface of the foot with the at least one laser scanning unit by directing at least one line of laser light along the undersurface as recited in independent claim 1. Further, White does not teach, suggest, or imply a system for forming custom-made insole that includes a scanning station having at

least one moveable laser scanning unit for determining coordinates of an undersurface of the foot, at least one milling station in communication with the scanning station, and having a milling assembly for forming custom-made insole, and control means for controlling the operation of the milling assembly based upon the coordinates determined by the laser scanning unit as recited in independent claim 13.

Moreover, Sundman does not teach or suggest passing at least one laser scanning unit along an undersurface of a foot, or scanning the undersurface of the foot with the at least one laser scanning unit by directing at least one line of laser light along the undersurface, as recited in independent claim 1, or a scanning station having at least one moveable laser scanning unit for determining coordinates of an undersurface of the foot, at least one milling station in communication with the scanning station and having a milling assembly for forming custom-made insole, and control means for controlling the operation of the milling assembly based upon the coordinates determined by the laser scanning unit, as recited in independent claim 13.

In view of the arguments set forth above, Applicants respectfully submit that Sundman and White are deficient, and that their combination in the § 103 rejection of independent claims 1 and 13 and dependent claims 7-12, 14-16, and 20-29 is insupportable. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

With respect to the §103 rejection of claims 1, 3-4, and 6 over White and Sundman, as applied to claim 1, in view of Applicants' prior art on page 8, lines 11-15 of the specification, Applicants respectfully submit that the arguments set forth above regarding White and Sundman are also applicable to this rejection of claims 1, 3-4, and 6. Accordingly, this rejection is respectfully requested to be reconsidered and withdrawn.

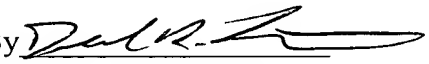
In addition to the amendments to correct the lack of proper antecedent basis, claims 13, 17, 20, 21, 22, and 28 also have been amended to clarify the claim language, particularly to specify that at least one insole-milling station is in communication with the at least one scanning station.

CONCLUSION

Having responded to all rejections set forth in the outstanding Final Office Action, it is submitted that claims 1, 3, 4, 6-29 are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or

more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,

By 
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VERSION OF AMENDED SPECIFICATION WITH MARKINGS TO SHOW CHANGES MADE

Please amend page 14, the second full paragraph, to read as follows:

Once the customer contour data is obtained and optionally smoothed, milling of the insert can be accomplished. In step 7, support information is loaded into computer 80 to select a blank and facilitate machining. For example, the support information contains data for matching a shoe size, and thus a blank size, to the customer contour data. The support information can also include data relating to the material for a blank to select the most appropriate material based on the customer information and customer contour data. The blank is loaded into the machine in step 8. The most appropriate material and size for the blank can then be displayed on display 16 to assist the operator in loading the blank into milling assembly 40. Typically, for half-sizes, the blank size is rounded up to the next whole size. In step 9, the blank is machined in the manner described above to produce the insole in accordance with the customer contour data.

VERSION OF AMENDED CLAIMS WITH
MARKINGS TO SHOW CHANGES MADE

13. (Twice Amended) A system for forming a custom-made insole, comprising:

at least one scanning station for supporting a foot to be measured, the at least one scanning station including at least one movable laser scanning unit for determining coordinates of an undersurface of the foot by directing at least one line of laser light along the undersurface;

at least one insole-milling station in communication with the at least one scanning station, the at least one milling station including a milling assembly for forming the custom-made insole; and

control means for controlling the operation of the milling assembly based upon the coordinates determined by the at least one laser scanning unit.

17. (Amended) The system of claim 13, wherein the at least one scanning station comprises a base having a length for supporting the foot, and wherein the at least one laser scanning unit [includes] comprises a first and second side portion extending upwardly from the base along the length thereof.

20. (Amended) The system of claim 13, wherein the control means is a computer disposed in a lower stand of the at least one insole-milling station.

21. (Amended) The system of claim 20, wherein the at least one insole-milling station includes a display device and an input device for entering and displaying customer information.

22. (Twice amended) The system of claim 13, wherein the milling assembly is disposed in an upper unit of the at least one insole-milling station.

28. (Amended) The system of claim 13, further comprising vacuum means disposed in the at least one insole-milling station for removing particles produced during milling of the insole.